

# Research and Land (Habitat) Management at Seney National Wildlife Refuge: The Past and Present

## Wordle Graphics

Lyndsay Morrison

October 3rd, 2016

### Methods

Wordle is a website that produces word cloud graphics based on inputted text ([www.wordle.net](http://www.wordle.net)). The generated word cloud emphasizes words that are important from the given text, by making them larger; word importance is determined by the number of times that word appears. Conversely, words that do not appear as often in the given text are smaller in the word cloud.

Our goal was to use Wordle graphics to show the change in research focus from 1930s to the present at Seney National Wildlife Refuge (SNWR). For word cloud generation, we used titles of published peer-reviewed papers, theses, or dissertations, all of which can be found on the Science page of the SNWR website ([https://www.fws.gov/refuge/Seney/what\\_we\\_do/research.html](https://www.fws.gov/refuge/Seney/what_we_do/research.html)). Other miscellaneous reports can also be found on this page as well, but we did not include these titles in the graphics.

Published papers and theses or dissertations were grouped based on the year they were published or completed: 1930-1949, 1950-1969, 1970-1989, and 1990-2016. A total of 178 titles were used: 141 were published peer-reviewed papers and 37 were theses or dissertations (Table 1).

**Table 1.** The number of published papers and theses or dissertations within a given (~20 yr) time period, Seney National Wildlife Refuge.

Time Period	Published Papers	Theses or Dissertations	Total
1930-1949	5	0	5
1950-1969	17	2	19
1970-1989	25	8	33
1990-2016	94	27	121
<b>Total</b>	<b>141</b>	<b>37</b>	<b>178</b>

All the titles from a time period were entered into the Wordle generator. Locations specific to the area, such as "Seney National Wildlife Refuge" and "Northern Michigan," were deleted from titles to avoid graphics that focused on locations as opposed to research. Years were also deleted from the titles. A feature on Wordle allowed for common words such as "the" and "in" to also be excluded.

The graphic was then created and settings were changed so they all had the same font, layout, and color scheme in order to avoid any visual bias.



**Figure 1.** Research topics from Seney National Wildlife Refuge between 1930-1949. During this time period, only peer-reviewed papers (n=5) were published (no theses or dissertations). All of these publications focused on bird species, specifically yellow and Virginia rails, Canada goose, and the Le Conte's sparrow.





